ON BOXER'S THUMB.

BY

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(*With Special Plate.*)

SUBLUXATION of the first metacarpo-phalangeal joint is a condition occurring chiefly among boxers, with whom it has attained almost the status of a stigma of the prize ring. It does, however, occur as the result of other accidents. The deformity may be either a primary condition, as with boxers, or a residual condition arising from a complete dislocation. In boxing the subluxation is produced by a blow on the distal portion of the thumb when it is not efficiently supported by the clenched fingers. The impact of a properly delivered blow should in no case directly affect the thumb, but it may be damaged by the opponent's guard.

Anatomy.

The head of the first metacarpal is somewhat flatter than the heads of the other metacarpals, and strong lateral ligaments bind it to the phalanx. Crossing the palmar aspect of the joint in question are the tendons of the adductor obliquus, opponens, and flexor brevis pollicis muscles. The first two are inserted by a common tendon into the ulnar side of the phalanx, and the short flexor into the radial side. In each tendon is a sesamoid bone provided with a separate synovial membrane for its articulation with the metacarpal. Below the sesamoids the tendons are fused together by fibro-cartilaginous tissue which is intimately attached to the anterior ligament and capsule of the joint. The capsule, which is lax in the flexed position, is drawn down during flexion and is thus prevented from being caught between the bones. Situated dorsally are the extensors and a weak ligament.

Movements.

The *active* movements of the joint are flexion and extension. The *passive* movements are: (1) a lateral hinge movement corresponding to adduction and abduction of the other digits; (2) a gliding movement in the horizontal plane, the base of the phalanx being displaced towards the palm of the hand. A similar gliding movement of phalanx on metacarpal can be produced in the fingers, but it is of less extent. With very long lax ligaments hyperextension and some degree of subluxation may take place normally as a result of active movements without apparent injury to the joint.

The accompanying skiagrams may be considered typical of (*a*) the normal, and (*b*) the subluxation in boxer's thumb. The subject of this particular joint had had a complete dorsal dislocation, and subluxation resulted. Note particularly a dislocation of the phalanx in the horizontal plane towards the palm, and the wide gap between the sesamoids and the head of the metacarpal.

Symptoms.

Immediately after the injury the patient complains of pain in the joint and of weakness, particularly as regards grip. There is not usually much swelling at the time. If left untreated, weakness continues and is accompanied by limitation of movement, both active and passive. In old-established cases the joint is almost immobile. It assumes a position of semiflexion, and becomes somewhat fusiform in shape from thickening of the capsular structures. The swelling tends to be more abrupt than in rheumatoid arthritis.

Treatment.

Digital reposition of the bones is easily accomplished by manipulation in the horizontal plane, with or without traction in the long axis of the thumb. A correct position is, however, not generally maintained. The problem, therefore, is not so much to reduce a dislocation as to make this reduction permanently effective.

Dislocation does not occur unless both the lateral ligaments and the capsule of the joint have been ruptured. The posterior ligament is relatively inefficient compared with the lateral and anterior ligaments. I have confirmed this by numerous experiments on the cadaver. A complete dislocation, in which the joint capsule and ligaments are ruptured, involves also a tearing of the attachments of the sesamoids to the metacarpal head. But in no case was there intervention of fibrocartilaginous or other tissue between the articular surfaces or between the tendons and the metacarpal, although I had imagined at one time that such intervention was a possible cause of failure in maintaining reduction.

Recurring or persisting deformity is caused by the unopposed traction of the short muscles of the thumb in the presence of rupture of the lateral ligaments and capsule. Treatment must therefore be directed to neutralizing this muscular pull. The first essential is a dorsal reduction of the lower end of the phalanx whereby it is brought into correct anatomical alignment, while maintaining a certain degree of flexion of the joint. This semiflexed position is best maintained by a special splint which exerts backward

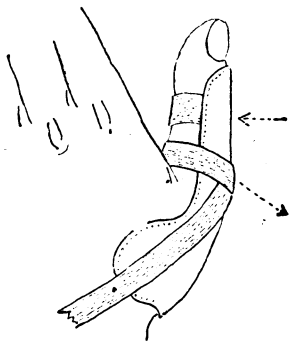

FIG. 3.—Illustration of the splint.

pressure on the lower end of the phalanx and the tendons, and counter-pressure both on the distal end of the phalanx and on the metacarpal. The moulded metal splint illustrated was made for me by Messrs. Lindsey and Sons of Brighton. It should be worn for about fourteen days to allow the healing of the capsule and ligaments; massage and passive movements should then be instituted, and the splint kept on for another week or fortnight.

Note.—I have tried both moulded poroplastic and strapping, but these methods have not proved satisfactory in my experience. Poroplastic does not lend itself to fine adjustments; and the essential counter-pressure producing a certain amount of flexion is not obtained by strapping.

OSTEITIS FIBROSA WITH INITIAL SYMPTOMS RESEMBLING RHEUMATIC INFECTION.

REPORT OF CASE.

BY

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(*With Special Plate.*)

THE cases of generalized osteitis fibrosa described by Wilder,[1] Hunter,[2] and others in 1929 presented signs of progressive weakness, loss of muscle tone, anaemia, pain in the bones, and decalcification of the skeleton, which were attributable to hyperfunction of a parathyroid tumour. The following case has been considered worthy of record since it conforms in many respects to those previously noted, and because it was one in which an initial clinical picture, suggestive of subacute rheumatism, was suddenly altered by the occurrence of a pathological fracture.

In May, 1929, the patient, an unmarried woman aged 50, complained of pain over the posterior aspect of the neck, the left deltoid region, and the left upper arm. Tenderness over those regions was then considered to be due to fibrositis. Anorexia, dyspnoea, mild pyrexia, and pain in the left infra-axillary region

developed in June, when the patient had to be confined to bed. Although the pain in the arm and chest was persistent, her general condition improved with rest, and she was eventually able to carry out her household duties to a limited extent. In August, however, while stepping on to a vehicle, she experienced a sudden severe pain in the left upper arm with a sense of "something having snapped." Examination immediately after this incident revealed subcutaneous haemorrhage along the inner aspect of the left upper arm and immobility of the affected part. A fortnight later the patient was admitted to a nursing home. A hard, fusiform swelling about the size of a tangerine orange was present over the lower third of the left humerus. Crepitus and undue mobility were absent. Tenderness was slight, but movements around the left elbow-joint were painful and limited. Sensations were unimpaired.

Radiograms showed a complete oblique fracture at the lower end of the left humerus, with the fragments in fairly good position and callus formation. The hard bone in the region of the fracture was greatly rarefied. The appearances were definitely indicative of pathological fracture (see Fig. 1). This finding was supported by the history of the case, in which there had been no question of external violence. Other areas of rarefaction were present in both epicondyles, in the head of the radius, and in the olecranon on the left side, while the right humerus, radius, and ulna (see Figs. 1 and 2), and the ribs on both sides, were also involved. Although the evidence pointed to the fracture having been pathological rather than traumatic in origin, healing had not been delayed, since bony union was firm. The differential diagnosis between secondary carcinoma of bone and some form of rarefying osteitis then fell to be considered.

A small nodule, about the size of a haricot bean, was palpable in the left mamma. The patient was examined by Mr. G. T. Mowat of the Glasgow Royal Cancer Hospital, who expressed the opinion that the nodule was more likely to be associated with chronic mastitis than with carcinoma. It was subsequently removed by Mr. Mowat. Histological examination revealed dense patches of fibrous tissue with very scanty adenomatous elements, indicative of chronic mastitis. It was pronounced non-malignant.

Examination of the pelvis, the chest, and the abdomen gave no evidence of neoplasm. Gastric analysis, after an Ewald's test breakfast, showed a normal acidity. The blood picture was that of a secondary anaemia. The urine contained a trace of albumin. Mitral stenosis was the only other point of note in the general survey.

The above findings, taken in conjunction with the fact that the fracture was well healed, were considered sufficient to exclude the presence of a primary carcinoma in any of the regions from which metastases to bone usually originate, and to confirm the non-malignant nature of the disease in the bones. Furthermore, the patient's nutrition was improving on ordinary diet.

The weight of evidence, then, turned in favour of some form of rarefying osteitis. A metabolic experiment, in which the calcium intake and output were measured over a period of four days, showed, however, that there was no excessive decalcification. The retention of calcium was slightly positive (0.3 gram CaO per day), and the calcium content of the blood was normal (0.014 per cent. CaO).

After returning home, on October 22nd, pain became more generalized, and the patient was completely confined to bed. Mild pyrexia, dyspnoea, and cough with blood-stained sputum commenced in December, following upon a chill. Anorexia and vomiting, not preceded by nausea and unassociated with food, supervened; oedema of the legs developed, and the patient died in January, 1930, with all the signs of cardiac failure.

Although the features of the case at one stage suggested that the pathological fracture might be associated with tumour of bone, the subsequent history as well as the clinical findings indicated that it was due to a localized or arrested osteitis fibrosa.

REFERENCES.
[1] Wilder, R. M.: *Endocrinology*, 1929, xiii, 321.
[2] Hunter, D.: *Proc. Roy. Soc. Med.*, 1929, xxiii, 2, 227.

ARTERIAL PRESSURE IN ITS CLINICAL ASPECTS.*

BY

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IN 1628, close upon 302 years ago, William Harvey published his observations on the circulation of the blood. The fundamental characters of his immortal discovery are still acknowledged to be in the main identical with those that he portrayed, without which no study of blood pressure would have been possible.

Meaning of Blood Pressure.—A certain level of blood pressure is essential for every individual in order that the circulation may be maintained. It is only when this level is too high or too low that symptoms are apt to arise. In physics blood pressure may be defined as that pressure exerted by the blood at a given instant upon a given point in the circulatory system. In physiology the term includes not only arterial, capillary, and venous pressures, but also the pressure of the blood upon the interior of the heart itself. In everyday language, however, the term is employed solely to designate arterial pressure. In its clinical aspects arterial pressure represents "a force originated by the contractions of the heart, maintained by the reaction to distension of the arterial walls, and regulated by the degree of resistance in the terminal portion of the arterial system." (Gallavardin.)

Types of Sphygmomanometer.—Modern instruments used in the clinical estimation of arterial pressure are of two main types—mercurial and aneroid. The mercurial sphygmomanometer registers the height in millimetres of a column of mercury equivalent to the arterial pressure at the moment of investigation. The aneroid instrument possesses an expansile chamber, distension of which by increase of internal pressure is magnified, and in turn transmitted to a fine needle travelling round a dial. Personally I find no instrument so generally satisfactory as an accurately constructed mercurial manometer of modern type, such as the baumanometer. Many practitioners prefer instruments of aneroid type owing to their smaller compass and greater portability. All aneroids, however, should be calibrated annually against a standard mercurial manometer, since after frequent use the aneroid chamber is liable to undergo over-distension, and thus to give readings which are too low in high pressure cases.

CLINICAL ESTIMATION OF ARTERIAL PRESSURE.

For the majority of cases the auditory method of estimation is the simplest, quickest, and most generally applicable. It is performed as follows: The patient, seated in a comfortable position, allows the bared arm to lie with the muscles relaxed upon a convenient support of such height that the armlet is approximately at the level of the heart. For patients confined to bed the instrument may be placed on a small adjoining table. The armlet should be evenly wrapped round the arm from within outward like a bandage, the tail being tucked in beneath the last fold. It should be applied as high as possible, so that the lower margin is well above the bend of the elbow, the middle of the pressure bag lying over the inner side of the arm, thus ensuring effective compression of the brachial artery. The patient's attention should be distracted by noting the rate and characters of the radial pulse. Apprehensiveness on the part of a sensitive patient should be allayed by explaining that the band round the arm will tighten for a minute or so, but that this temporary pressure is quite harmless. The pressure bag should be rapidly inflated until the pressure within it is above that in the brachial artery, over which the bell of a stethoscope has been lightly placed just above the bend of the elbow, to the inner side of the biceps tendon.

On decompression following pulse obliteration the first audible click denotes the level of the systolic pressure. As the external pressure in the bag is permitted gently and evenly to fall a variable murmur phase becomes audible, passing into a longer sequence of sonorous thuds, which gradually reach a climax of intensity before being succeeded by a series of dull and muffled sounds, the fourth auditory phase, preceding silence. The first dull sound following the last loud thud denotes the level of the diastolic pressure. By subtracting the diastolic pressure from the systolic one obtains the differential (so-called pulse) pressure. These figures, along with the pulse rate and characters, can readily be entered in the case notes, and constitute "the complete arterial pressure picture."

*An address given to the Kensington Division of the British Medical Association on March 19th, 1930.

ARTHUR JACOBS: HORSESHOE KIDNEY.

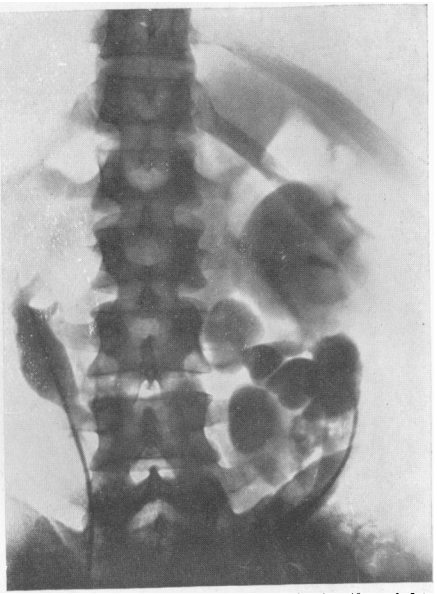

FIG. 1.—Calculous hydronephrosis in the right segment of a horseshoe kidney. The anomalous axis of the calyces and the relation of the ureters are shown.

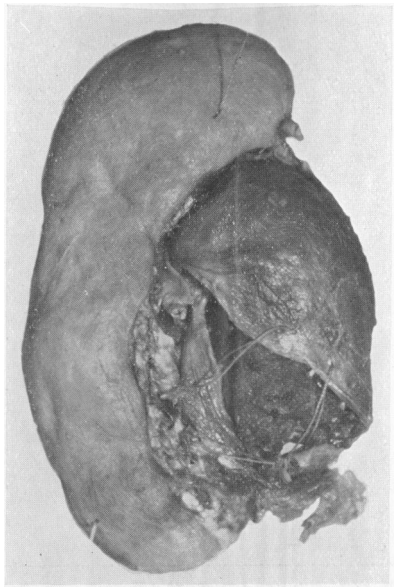

FIG. 2.—Resected segment of horseshoe kidney. The large calculus can be seen within the dilated pelvis, the anterior wall of which has been opened.

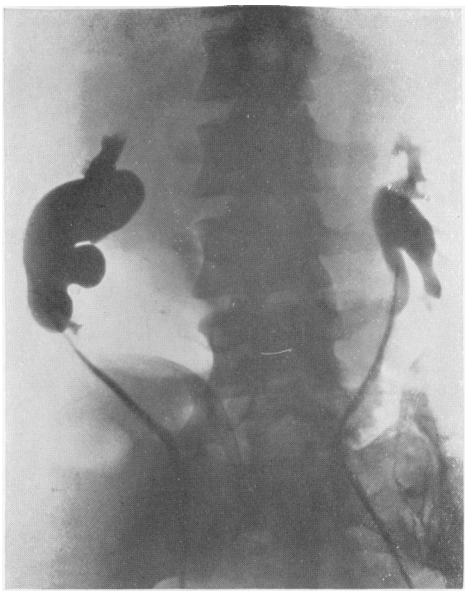

FIG. 3.—Hydronephrosis in the left segment of a horseshoe kidney.

J. SALISBURY CRAIG AND J. H. SHEARER: OSTEITIS FIBROSA.

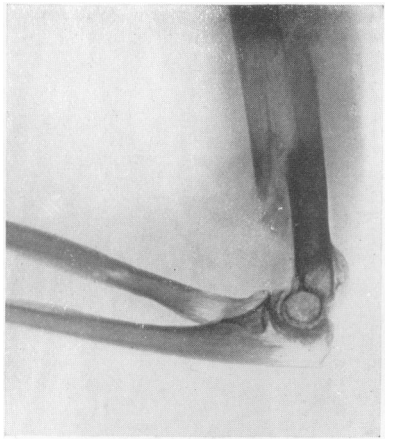

FIG. 1.—Pathological fracture of left humerus. Areas of rarefaction in radius and ulna.

I. H. LLOYD-WILLIAMS: BOXER'S THUMB.

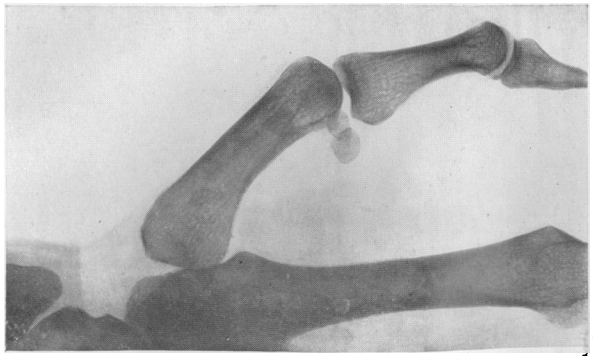

FIG. 1.—Radiogram of normal thumb, showing the normal position of the bones and sesamoids.

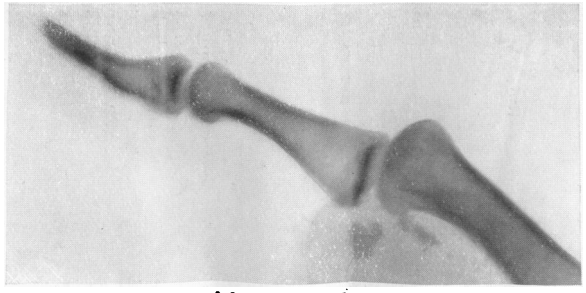

FIG. 2.—Radiogram of boxer's thumb. Note the space between the sesamoids and metacarpal and the subluxation of the phalanx.

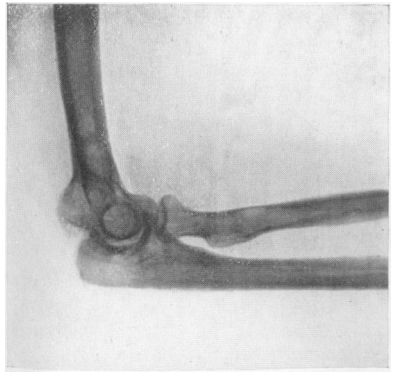

FIG. 2.—Areas of rarefaction in right humerus, radius, and ulna.